

Amendments to the Claims:

This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 (Currently Amended): [[A]] An article comprising:

a stack-type automobile cell mounted on an automobile, including comprising:

an electric power generating element including:

a positive electrode having a positive electrode active substance layer,

a negative electrode having a negative electrode active substance layer,

and

a separator interposed between the positive electrode and the negative electrode,

the positive electrode, the negative electrode and the separator being stacked in a stack direction to allow the positive electrode and the negative electrode, opposing to the positive electrode via the separator, to define a unit electrode;

a cell outer sheath:

made from a laminate film compositely composed of polymer and metal, and

welded to gas-tightly encapsulate the electric power generating element inside the cell outer sheath such that the stack-type automobile cell is formed in a flat shape with a thickness defined by the cell outer sheath along the stack direction;

a positive electrode terminal lead electrically conductive with the positive electrode and sandwiched between welded portions, formed by the cell outer sheath that has been welded, and extending to an outside of the cell outer sheath; and

a negative electrode terminal lead electrically conductive with the negative electrode and sandwiched between welded portions, formed by the cell outer sheath that has been welded, and extending to the outside of the cell outer sheath,

wherein a relationship between the thickness of the stack-type automobile cell and a sum of a thickness of the positive electrode active substance layer and a thickness of the negative electrode active substance layer, along the stack direction of the unit electrodes, is defined such that a value obtained by dividing the thickness of the stack-type automobile cell by the sum of the thickness of the positive electrode active substance layer and the thickness of the negative electrode active substance layer is equal to or greater than 10 and equal to or less than 80,

the positive electrode active substance layer is formed on a positive electrode current collector and the negative electrode active substance layer is formed on a negative electrode current collector such that a value obtained by dividing a thickness of the positive electrode terminal lead along the stack direction by a sum of a total thickness of the positive electrode current collector in the stack-type automobile cell is equal to or greater than 0.4 and equal to or less than 2.0,

a value obtained by dividing a thickness of the negative electrode terminal lead along the stack direction by a sum of a total thickness of the negative electrode current collector in the stack-type automobile cell is equal to or greater than 0.4 and equal to or less than 2.0,

a width of the positive electrode terminal lead is equal to or greater than 40 % and equal to or less than 80 % of a length of one side of the cell outer sheath from which the positive electrode terminal lead extends to the outside,

a width of the negative electrode terminal lead is equal to or greater than 40 % and equal to or less than 80 % of a length of one side of the cell outer sheath from which the negative electrode terminal lead extends to the outside, and

the positive electrode terminal lead and the negative electrode terminal lead extend to the outside from opposing sides of the cell outer sheath, respectively.

2 (Currently amended): The ~~automobile cell~~ article according to claim 1, wherein the cell outer sheath is rectangular in shape, and a length of one side, other than that of the cell outer sheath from which the positive electrode terminal lead extends to the outside of the cell outer sheath and that of the cell outer sheath from which the negative electrode terminal lead extends to the outside of the cell outer sheath, are each equal to or less than 250 mm.

3 (Currently amended): The ~~automobile cell~~ article according to claim 2, wherein a value obtained by dividing by a cell capacity of the automobile cell one of a following first surface area and a following second surface area whichever is wider is equal to or greater than 30 (cm^2/Ah);

a first surface area in which the positive electrode is projected onto an area of the positive electrode active substance layer in the stack direction, and

a second surface area, in which the negative electrode is projected onto an area of the negative electrode active substance layer in the stack direction,

where any one of the first surface area and the second surface area is applicable when being equal.

4-8 (Canceled)

9 (Currently amended): The ~~automobile-cell~~ article according to claim 1, wherein at least one of the positive electrode terminal lead and the negative electrode terminal lead is selected from Ni, Cu, Al, Fe or an alloy of these metals, and Ni, Al, Fe or the alloy of these metals coated with differing elements of Ni, Ag and Au.

10 (Currently amended): The ~~automobile-cell~~ article according to claim 1, wherein at least one of an average thickness of the positive electrode active substance layer and an average thickness of the negative electrode active substance layer is equal to or greater than 20 μm and equal to or less than 80 μm .

11 (Currently amended): The ~~automobile-cell~~ article according to claim 1, wherein the cell outer sheath is made from a pair of the laminate films of which circumferentially peripheral portions are brought into abutting engagement and joined by thermal welding to allow the electric power generating element to be gas-tightly accommodated inside the cell outer sheath such that the positive electrode terminal lead and the negative electrode terminal lead are sandwiched between welded portions, formed by the thermal welding, of the cell outer sheath and extend to the outside.

12 (Currently amended): The ~~automobile-cell~~ article according to claim 1, wherein the cell outer sheath is made from one sheet of the laminate film of which opening portions are brought into abutting engagement and joined by thermal welding to allow the electric power generating element to be gas-tightly accommodated inside the cell outer sheath such that the positive electrode terminal lead and the negative electrode terminal lead are sandwiched between welded portions, formed by the thermal welding, of the cell outer sheath and extend to the outside.

13 (Canceled)

14 (Currently amended): The ~~automobile cell~~ article according to claim 1, wherein at least one group of at least two of the automobile cells that are connected in parallel or series is combined, whereupon the automobile cells are stacked or placed side by side, and

the automobile cells have at least one of the following welding combinations:

the positive electrode terminal lead and the corresponding positive electrode terminal lead,

the negative electrode terminal lead and the corresponding negative electrode terminal lead, and

the positive electrode terminal lead and the corresponding negative electrode lead.

15 (Currently amended): The ~~automobile cell~~ article according to claim 14, wherein at least one of the positive electrode terminal leads and/or at least one of the negative electrode terminal leads are welded to an associated one sheet of bus bar.

16 (Currently amended): The ~~automobile cell~~ article according to claim 14, wherein at least two of the automobile cells are compositely connected in series, parallel or combination of series and parallel under a stacked or side-by-side state.

17 (Canceled)

18 (Withdrawn): A method of manufacturing an automobile cell, the method comprising:

preparing an electric power generating element including a positive electrode having a positive electrode active substance layer, a negative electrode having a negative electrode active substance layer, and a separator interposed between the positive electrode and the negative electrode, the positive electrode, the negative electrode and the separator being stacked in a stack

direction to allow the positive electrode and the negative electrode, opposing to the positive electrode via the separator, to define a unit electrode;

placing the electric power generating film in a cell outer sheath made from a laminate film compositely composed of polymer and metal; and

welding the cell outer sheath to gas-tightly encapsulate the electric power generating element inside the cell outer sheath such that a positive electrode terminal lead electrically conductive with the positive electrode is sandwiched between the cell outer sheath to extend to an outside of the cell outer sheath, and a negative electrode terminal lead electrically conductive with the negative electrode is sandwiched between the cell outer sheath to extend to the outside of the cell outer sheath,

wherein the relationship between the thickness of the automobile cell and a sum of a thickness of the positive electrode active substance layer and a thickness of the negative electrode active substance layer, along the stack direction of the unit electrodes, is defined such that a value obtained by dividing the thickness of the automobile cell by the sum of the thickness of the positive electrode active substance layer and the thickness of the negative electrode active substance layer is equal to or less than 80,

the positive electrode active substance layer is formed on a positive electrode current collector and the negative electrode active substance layer is formed on a negative electrode current collector such that a value obtained by dividing a thickness of the positive electrode terminal lead along the stack direction by a sum of a total thickness of the positive electrode current collector in the stack-type automobile cell is equal to or greater than 0.4 and equal to or less than 2.0,

Application No.: 10/622,511

a value obtained by dividing a thickness of the negative electrode terminal lead along the stack direction by a sum of a total thickness of the negative electrode current collector in the stack-type automobile cell is equal to or greater than 0.4 and equal to or less than 2.0,

a width of the positive electrode terminal lead is equal to or greater than 40 % of a length of one side of the cell outer sheath from which the positive electrode terminal lead extends to the outside, and

a width of the negative electrode terminal lead is equal to or greater than 40 % of a length of one side of the cell outer sheath from which the negative electrode terminal lead extends to the outside.

19 (New): An article comprising:

an automobile; and

a stack-type automobile cell mounted on the automobile, including:

an electric power generating element including:

a positive electrode having a positive electrode active substance layer,

a negative electrode having a negative electrode active substance layer,

and

a separator interposed between the positive electrode and the negative electrode,

the positive electrode, the negative electrode and the separator being stacked in a stack direction to allow the positive electrode and the negative electrode, opposing to the positive electrode via the separator, to define a unit electrode;

a cell outer sheath:

made from a laminate film compositely composed of polymer and metal, and

welded to gas-tightly encapsulate the electric power generating element inside the cell outer sheath such that the stack-type automobile cell is formed in a flat shape with a thickness defined by the cell outer sheath along the stack direction;

a positive electrode terminal lead electrically conductive with the positive electrode and sandwiched between welded portions, formed by the cell outer sheath that has been welded, and extending to an outside of the cell outer sheath; and

a negative electrode terminal lead electrically conductive with the negative electrode and sandwiched between welded portions, formed by the cell outer sheath that has been welded, and extending to the outside of the cell outer sheath,

wherein a relationship between the thickness of the stack-type automobile cell and a sum of a thickness of the positive electrode active substance layer and a thickness of the negative electrode active substance layer, along the stack direction of the unit electrodes, is defined such that a value obtained by dividing the thickness of the stack-type automobile cell by the sum of the thickness of the positive electrode active substance layer and the thickness of the negative electrode active substance layer is equal to or greater than 10 and equal to or less than 80,

the positive electrode active substance layer is formed on a positive electrode current collector and the negative electrode active substance layer is formed on a negative electrode current collector such that a value obtained by dividing a thickness of the positive electrode terminal lead along the stack direction by a sum of a total thickness of

the positive electrode current collector in the stack-type automobile cell is equal to or greater than 0.4 and equal to or less than 2.0,

a value obtained by dividing a thickness of the negative electrode terminal lead along the stack direction by a sum of a total thickness of the negative electrode current collector in the stack-type automobile cell is equal to or greater than 0.4 and equal to or less than 2.0,

a width of the positive electrode terminal lead is equal to or greater than 40 % and equal to or less than 80 % of a length of one side of the cell outer sheath from which the positive electrode terminal lead extends to the outside,

a width of the negative electrode terminal lead is equal to or greater than 40 % and equal to or less than 80 % of a length of one side of the cell outer sheath from which the negative electrode terminal lead extends to the outside, and

the positive electrode terminal lead and the negative electrode terminal lead extend to the outside from opposing sides of the cell outer sheath, respectively.